ROCKY FLATS PLANT
GOLDEN, COLORADO

TECHNICAL REVIEW
SITE-WIDE QUALITY ASSURANCE PROJECT PLAN

Prepared for:

U.S. ENVIRONMENTAL PROTECTION AGENCY
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ADMIN RECORD

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1.0 INTRODUCTION

PRC Environmental Management, Inc. (PRC) prepared this report for the U.S. Environmental Protection Agency (EPA) under contract no. 68-W9-0009 (TES 12), work assignment no. C08061. The report is a review of the site-wide quality assurance project plan (QAPjP) prepared for the Rocky Flats Plant (Rocky Flats) located in Golden, Colorado.

This review is divided into two sections: general comments concerning the entire document and specific comments relating to individual sections of the report. Two EPA guidance documents were used to assess conformance of the QAPjP to EPA requirements: "Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA" (EPA/540/G-89/004, U.S. EPA, October 1988) and "Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans" (QAMS-005/80, U.S. EPA, December 1980). Reference in this letter to both these documents is abbreviated as "EPA QAPjP guidance" for simplicity.

The focus of this review is based on the assumption that the QAPjP should contain all quality assurance/quality control (QA/QC) information that would be applicable to a majority of sites throughout the Rocky Flats area. From this perspective, the QAPjP would serve as the source for most of the QA/QC information. A quality assurance addendum (QAA) for an individual site may contain specific information concerning QA/QC at the site but could reference the QAPjP for the remaining QA/QC instructions.

2.0 GENERAL COMMENTS

1) The QAPjP does not contain all 16 elements required for a QAPjP as described in EPA QAPjP guidance. Discussions of analytical procedures and data assessment procedures are missing. Although Figure 2-1 (page 12) lists the required elements and the location of each element in the body of the QAPjP, description of these two elements is not present at the identified locations or in any other section of the QAPjP.

   Rationale: Completeness is critical for the QAPjP to describe how data of a known and acceptable quality are produced.

2) The QAPjP contains many additional sections not required by EPA QAPjP guidance. These sections include procurement document control, document control, control of purchased items and services, control of processes, test control, quality assurance records, and software quality assurance. Although procedures discussed in these sections may be useful for

program management, they add unnecessary length to the QAPjP and make retrieval of project-related information more difficult.

Rationale: A concise presentation of the information needed at the project level of activities maximizes the utility of the QAPjP. The additional information provided may be more appropriately included in a quality assurance program plan.

3) The QAPjP should address specific items common to many locations throughout the Rocky Flats site whenever possible. Although this is a site-wide QAPjP, many aspects of the QAPjP apply to any individual site at Rocky Flats. For example, some types of field equipment such as pH meters, specific conductance meters, water level indicators, and photoionization detectors (PIDs) may be used throughout the Rocky Flats site. Calibration, maintenance, and procedures for use of these instruments could be included in the QAPjP. These specific procedures could be a reference base for future QAAs written for individual sites.

Rationale: Description of specific procedures and requirements will maximize the utility of the QAPjP. By summarizing items common to many sites in the QAPjP, site-specific QAAs can focus on aspects unique to each individual site.

4) The QAPjP should describe the interaction and communication between the quality assurance officer (QAO) and personnel actually doing project-related work (for example, field investigation manager, supervisory geologists, and laboratory personnel). Throughout the QAPjP, reference is made only to communications between the QAO and division managers. The QAO should be separate from the lines of authority for the project and should be accessible by all members of the project team. For the QA/QC program to be effective, adequate communication must exist between personnel collecting data and the QAO.

Rationale: Communication between all the participants is necessary to produce data of an acceptable quality.

5) The QAPjP contains numerous references to standard operating procedures (SOPs) that relate to QA/QC activities. These references detract from the utility of the QAPjP and require additional SOPs to be attached and distributed along with each copy of the QAPjP. In some cases, the description of an item (such as chain-of-custody procedures) would be more effective if placed in the QAPjP. Procedures and requirements related to QA/QC activities should be present in the QAPjP even if they are included in the SOPs.

Rationale: A concise presentation of necessary information maximizes the utility of the QAPjP.

3.0 SPECIFIC COMMENTS

1) Executive Summary, Page ii, Paragraph 1. The last citation listed in the paragraph is incorrect. The correct citation is "Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans" QAMS-005/80, U.S. EPA, December 1980.

Rationale: Correct citation of reference materials is necessary to allow facts or concepts to be confirmed or studied in more detail.

2) Executive Summary, Page ii, Paragraph 2. It is not clear what the acronyms "ANSI/ASME NQA-1" represent. Inclusion of the title "Quality Assurance Program Requirements for Nuclear Facilities" would clarify the sentence.

Rationale: Including the title of the reference would explain the source of the additional QAPjP sections not required by the EPA QAPjP guidance. General comment 2 addresses the necessity of these sections.

3) Table of Contents, Page ix. The table of contents should contain a list of figures and a list of tables. These lists would facilitate location of figures and tables within the QAPjP.

Rationale: A complete table of contents maximizes the utility of the QAPjP. In addition, a complete table of contents is one of the 16 required elements described in EPA QAPjP guidance.

4) Summary of Revisions, Page xi. Although this section discusses the procedure for documenting revisions to the QAPjP, the section does not describe how the issue number of the QAPjP will change as revisions are incorporated. The current issue is D-1. It is not clear what the next issue number would be (D-2 or E-1).

Rationale: The most current version of the QAPjP should be the only one in use. Knowledge of the system used to label major revisions promotes use of the most recent version of the QAPjP.

5) Acronyms and Abbreviations, Page xii. The definitions of the acronyms CERCLA and NCP should be corrected. The correct definitions are: CERCLA, Comprehensive Environmental

Response, Compensation, and Liability Act; and NCP, National Oil and Hazardous Substances Contingency Plan.

Rationale: Correct definitions minimize possible confusion concerning acronyms.

6) Introduction and Scope, Page xv. Six of the nine references are not included in the QAPjP reference list (Appendix B). References three through eight are missing from the reference list and should be included.

Rationale: A complete reference list is necessary to allow facts or concepts to be confirmed or studied in more detail.

7) Section 1.0 Organization and Responsibilities, Page 3, Figure 1-2. It is not clear how personnel who actually collect and handle data are incorporated into the organization structure. Personnel including the project manager, health and safety officer, field operations manager, supervisory geologists, laboratory coordinator, and laboratory quality assurance manager are not represented on the project organization diagram.

Rationale: Because this is a site-wide QAPjP, specific individuals may not be listed on the organization diagram. However, the positions and the relations among positions are needed to ensure all project tasks and responsibilities are considered.

8) Section 2.1 QA Project Plan Basis, Page 11, Paragraph 1. The reference to the U.S. Department of Energy (DOE) document "Quality Assurance Requirements for Rocky Flats Management and Operations" should be included in the QAPjP reference list.

Rationale: A complete reference list is necessary to allow facts or concepts to be confirmed or studied in more detail.

9) Section 2.6 Quality Assurance Reports to Management, Page 17. It is not clear who is responsible for preparation of quality assurance (QA) reports. Although various individuals (including the QAO) "shall rely on written reports...to ensure overall adherence of the project to QA requirements," no individual is cited as responsible for generating the reports.

Rationale: Because written reports are a major source of information for assessing project conformance with QA requirements, a responsible individual (perhaps the project manager) should be identified to ensure QA reports are completed.

10) Section 2.6 Quality Assurance Reports to Management, Page 17. The frequency for submission of QA reports is not mentioned. Reports should be submitted at regular intervals to allow prompt identification and correction of QA-related problems.

Rationale: Adherence to the project QA requirements promotes collection of data of a known and acceptable quality. Monthly QA reports may be adequate for assessment of project conformance to QA requirements.

11) Section 3.3.1 Data Quality Objectives, Page 20. The criteria addressed by data quality objectives (DQOs) apply throughout the Rocky Flats site. However, DQOs are only briefly discussed and are not developed. The concepts and definitions of precision, accuracy, representativeness, completeness, and comparability should be presented in this section. Although precision and accuracy DQOs are compound-specific, DQOs for representativeness, completeness, and comparability probably will be the same throughout the Rocky Flats site area. In addition, a list of target compounds at the Rocky Flats site could be compiled and could include all precision and accuracy criteria. Subsequent QAAs could incorporate DQOs specific to individuals sites simply by reference to the QAPjP.

Rationale: Development of DQOs in the QAPjP not only satisfies the requirements described by EPA QAPjP guidance, but also eliminates the need for repetition (in QAAs) of DQOs that are common to many individual sites. Identification of DQOs also should establish rationales for sample collection and be part of the determination of overall project goals.

12) Section 3.3.1 Data Quality Objectives, Page 20, Paragraph 2. The two references cited concerning the development of DQOs should be included in the QAPjP reference list.

Rationale: A complete reference list is necessary to allow facts or concepts to be confirmed or studied in more detail.

13) Section 3.3.3.2 Data Validation, Field Data Validation, Page 23. The section describing field data validation should discuss criteria against which data will be judged. Examples of these criteria include adherence to equipment calibration procedures, SOPs for sample collection and preservation, and chain-of-custody procedures.

Rationale: A more detailed discussion of the criteria involved in field data validation will promote accurate and careful collection of data in the field.

14) Section 3.3.3.2 Data Validation, Laboratory Data Validation, Page 24. The seven references listed in this section should be included in the QAPjP reference list.
Rationale: A complete reference list is necessary to allow facts or concepts to be confirmed or studied in more detail.

15) Section 8.3.2.4 Chain of Custody, Page 55. Additional details should be included concerning chain-of-custody procedures. The discussion in the text defers description of sample identification and custody procedures to SOPs and the general radiochemistry and routine analytical services protocol (GRRASP). Chain-of-custody procedures are a critical part of the QA/QC process and should be described by the QAPjP. Requiring reference to additional documents (SOPs and the GRRASP) will make the QA/QC process more difficult for field personnel to complete. In addition, EPA QAPjP guidance recommends a copy of the chain-of-custody record be included in the QAPjP.

Rationale: Adherence to chain-of-custody procedures is necessary to adequately document the transportation and handling of samples from field collection points to the analysis laboratory. Unless appropriate SOPs and the GRRASP are always attached to the QAPjP, instructions regarding chain-of-custody procedures may not be available to the field personnel collecting samples.

16) Section 9.0 Control of Processes, Page 60. This section states that activities covered by the QAPjP do not contain processes that need to be controlled. If this section is not necessary, it should be removed.

Rationale: Elimination of unnecessary sections promotes the utility of the QAPjP.

17) Section 12.3.4 Calibration Procedures, Page 71. The text of this section notes that written procedures will be utilized for the calibration of all measuring and test equipment. However, the section does not contain any calibration procedures, nor does it include references to appropriate procedures. Many instruments will be used throughout the Rocky Flats site. Calibration procedures (including the frequency of calibration) for these instruments should be included in this section. Field instruments include pH meters, specific conductance meters, water level indicators, PIDs, combustible gas indicators, and radiation monitoring devices. Calibration procedures for field equipment that will have a limited use could be included in the site-specific QAAs. Laboratory calibration procedures and frequency also should be discussed in this section or reference should be made to other appropriate documents (such as contract laboratory program (CLP) statements of work or the GRRASP).

Rationale: Adherence to approved calibration procedures is necessary to ensure instruments provide data that are of a known and acceptable quality.

18) Section 12.3.5 Preventive Maintenance Procedures and Schedules, Page 72. This section relates to calibration and not preventive maintenance. Similar to comment 17, preventive maintenance procedures and scheduling for all equipment that will be used site-wide should be included in this section. The same types of field instruments discussed in comment 17 should also be included in the preventive maintenance discussion.

Rationale: Knowledge of preventive maintenance procedures and schedules will enable field personnel to minimize equipment breakdowns and maximize effectiveness of data collection.

19) Section 15.3.2 Identification of Nonconformances, Page 79. This section discusses initiation of a nonconformance report (NCR) but does not indicate who is responsible for initiating the NCR. Appropriate individuals who may initiate NCRs should be identified in this section.

Rationale: For the process to be effective, individuals responsible for identifying nonconformances must be identified. Any individual who recognizes a nonconformance should be able to initiate a NCR.

20) Section 15.3.4 Disposition of Nonconformances, Page 81. The section describes the responses to NCRs related to equipment but also should discuss NCRs involving procedures. NCRs also may be generated by inadequate adherence to procedures (such as sampling or decontamination procedures). Identification and response to these types of NCRs also should be addressed.

Rationale: The process of identifying and resolving NCRs should consider all types of NCRs for the QA/QC program to be effective.

21) Section 16.3.1 Identification of Conditions Adverse to Quality, Page 84. This section should identify personnel who may initiate a corrective action report (CAR). The focus of this comment is the same as for comment 19.

Rationale: For the process to be effective, individuals responsible for initiating CARs must be identified.

22) Section 16.3.1 Identification of Conditions Adverse to Quality, Figure 16-1, Page 85. The sample form presented should be modified to be more legible. In addition, no instructions

for completing the form are presented on the form or in the text of Section 16.3.1. A legible form and instructions for completing the form should be included in Section 16.3.1.

Rationale: Readable forms and adequate instructions are necessary to promote the utility of the QAPjP and the quality of the results of the project in general.

23) DQO Summary Form Instructions, Appendix A, Page A20. The instructions on this page are not legible.

Rationale: Readable instructions are necessary to promote the utility of the QAPjP.

24) Appendix A, Page A21. The equation presented for the calculation of accuracy is not correct. To be consistent with the definitions of the terms A_F, A_o, and A_r that are listed in the text, the correct equation is :

$$\text{Accuracy} = \text{Percent Recovery} = \frac{A_r - A_o}{A_F} \times 100\%$$

Rationale: Correct equations promote correct utilization of the concept of accuracy stated throughout the QAPjP. Accuracy is one of the criteria used to judge the validity of field and laboratory data. Correct calculation of accuracy promotes proper evaluation of data.